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PREVALENCE OF SCHISTOSOMIASIS IN MBALA DISTRICT, NORTHEN PROVINCE, ZAMBIA

BY

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LIST OF ABBREVIATIONS

1. CBoH	-	Central Board of Health
2. CSO	-	Central Statistical Office
3. DHMT	-	District Health Management Team
4. IEC	-	Information Education and Communication
5. TDRC	-	Tropical Disease Research Centre
6. MoH	-	Ministry of Health
7. OPD	-	Outpatient Department
8. SCI	-	Schistosomiasis Control Initiative
9. UNZA	-	University of Zambia
10. WHO	-	World Health Organization
11. ZDHS	-	Zambia Demographic Health Survey

STATEMENT

I hereby certify that this study is entirely the result of my own independent investigations. the various sources to which I am indebted are clearly indicated in this paper and in the references.

SIGN: _____ DATE: 15-05-2006.

ABSTRACT

Schistosomiasis is a tropical disease caused by blood flukes of the genus schistosome. According to data reviewed, Mbala District has been experiencing a number of people suffering from Bilharzia from 1999 to 2004(150-214).
The important aspects of Bilharzia pathology are the complications of the disease such as cancer of the bladder and anaemia .Infected children become weaker and the school performance is reduced.
It was against this background that the study was aimed at identifying the reasons why there is a high prevalence of bilharzias among school going children in Mbala.

It was hoped that the findings of the study would be used in the formulation of policies and strategies to reduce schistosomiasis prevalence. A non experimental, cross sectional, descriptive study was used. A simple random sampling method was used and a sample of 50 respondents was selected. Respondents were selected from 4 rural Basic Schools namely, Chianga, Ndundundu, Uningi, and St. Pauls.

Data was collected using a structured interview schedule in the month September 2005.Analysis of data was manually and findings were presented in frequency tables and cross tables. The specific objectives were to asses knowledge levels on schistosomiasis, identify recreational and occupational practices, and asses the level of compliance to schistosomiasis treatment among school going children.

The study reviewed that the level of knowledge on schistosomiasis increased with increasing level of education. It was also found that most of the respondents (50%) had low knowledge levels on schistosomiasis. This was attributed to the fact that pupils in lower primary grades (1-4) did not learn about Bilharzia in class. The study further reviewed that (94%) of the respondent's recreational and occupational Practices were poor. This was attributed to poor socio-economic conditions of most people in Mbala .The study also reviewed that, all the respondents (100%) who passed blood in urine had poor compliance to treatment. This was attributed to the fact that bilharzia presents with light infection and less serious manifestations.

This therefore implies that there is need for authorities to recognize Bilharzia as one of the priority problems of public health and devise strategies such as mass health education on bilharzia. The other recommendation is that there is need for further research on the aspects of snail species to determine the contact sites and come up with an approach to control snail population.

BACKGROUND CHAPTER ONE

1.0 INTRODUCTION

1.1 An Overview of Zambia

Zambia is a landlocked country because it shares all its borders with other countries. It covers an area of 752,612 square kilometers and comprises about 2.5% of the area of Africa. It shares borders with the Democratic Republic of Congo (DRC) and Tanzania in the north; Malawi and Mozambique in the east; Zimbabwe and Botswana in the south; Namibia in the southwest and Angola in the west (ZDHS, 2002).

Administratively, the country is divided into nine (9) provinces and seventy two (72) districts. Out of the nine (9) provinces, two (2) are predominantly urban, namely; Lusaka and Copperbelt Provinces. The remaining provinces; Eastern, Central, Southern, Luapula, Western, Northwestern and Southern are predominantly rural provinces. Nearly four in ten Zambians live in urban areas (ZDHS, 2002).

According to the 2000 census, the population of Zambian stands at 10,285,631, with 42% of the population living in urban areas, primarily the mining area of the Copperbelt and the urban centre of the Lusaka Province (CSO, 2000).

1.1.2 An Overview of Mbala District

Mbala District is one of the twelve (12) districts in Northern Province. It lies in the Northern part of Zambia, sharing borders with the Republic of Tanzania in the north, Mpulungu District in the west, Kasama District in the south, Mungwi District in the southeast and Nakonde District in the east. It is the third largest district in the province and it serves the population of 167,671 (CSO, 2000). The district has access to two (2) lakes, namely; Lake Chila and Lake Tanganyika. The latter is of major economic value as it provides

abundant fish.The district lies on a plateau (high flat land). The climate is tropical hence with rainfalls in the months of October to May.

Communication to the district is mainly by road. The main road (Great North Road) from Lusaka via Kasama to Mbala is tarred and the rest of the rural roads from town centre and those joining different health centres are gravel. The area has a Zambia National Broadcasting Corporation television and radio facility. For telecommunication, Celtel-Zambia was connected to the area on 14th June, 2005. The district has air services, which were opened to civilians in 1998 at Samora Machel Air Base (Mbala Zambia Air Force Base).

The development process in Mbala District has been quite slow especially after closure of most companies in the event of liquidation. The economic activities undertaken in the District include commercial and subsistence farming, cattle ranching and fishing.

The main cash crops are beans, cassava, maize, rice, finger millet and potatoes. The area has a tourist attraction centre these are; Moto-Moto Museum and Kalambo Falls.

The Mambwe and Lungu speaking people predominantly occupy the district and other languages spoken include; Bemba and Namwanga. The District has a few Fipa and Swahili speaking people along the Zambia-Tanzania border north and east of Mbala.

The District is serviced by 16 health facilities including one district hospital which serves as a first level referral health facility in the District. There are 13 government health centres, one mission rural health centre and two (2) clinics under the Defence Forces (Zambia Air Force and Zambia National Service). There are 192 health posts where

health centre staff goes for outreach services covering promotive, preventive and curative services.

The commonest disease that affect the Zambian population are attributable to preventable diseases related to environmental health. These include malaria, diarrhoea and respiratory infections (ZDHS, 2000).The other major health problems are attributable to poor economic status. These include malnutrition, sexually transmitted diseases and HIV (ITG, 2000).

The diseases which are endemic in Mbala according to Mbala DHMT (2004) are as follows; malaria, anaemia, diarrhoea, and respiratory tract infections. The district is affected by erratic water supply which contributes to waterborne diseases (cholera) water washed diseases (scabies), water related diseases (trypanosomiasis and water vector diseases (schistosomiasis).

The scarcity of water, compounded by inadequate sanitation and poor hygiene practices precipitate the high prevalence of schistosomiais. It is surprising that Mbala faces scarcity of water since it has two lakes. This may be attributed to poor maintenance of water pumps by the council.

1.2 STATEMENT OF THE PROBLEM

Zambia is among the world's poorest and most disadvantaged nations affected by schistosomiasis. About 2 million people in Zambia are infected with schistosomiasis (CBoH, 2005). The disease is found in every province in Zambia. School aged children are the most infected group. It is also prevalent amongst groups of people who often do not have access to proper health care or effective preventive measures.

Mbala District has been experiencing a number of people suffering from Bilharzia. The available data show that most affected areas are; Mwamba, Munyezi, Chozi and Mbala rural (Mbala DHMT, 2005). This may be so due to a number of reasons. The snails which are hosts for Bilharzia breed in swamps and rivers where the local people draw water. The cercaria then takes advantage to penetrate the skin of individuals when they are in contact with water.

"It is now advocated that snail control should be promoted through clearing vegetation along water edges, discouraging urination and defecation in the bushes near water sources and discouraging people from swimming, bathing in stagnant water" (Zambia Bilharzia Control Initiative, 2005). Infection with Bilharzia affects the whole quality of life of a person. The pathophysiology of schistosomiasis below elaborates how the disease affects individuals.

The parasite which causes schistosomiasis (blood fluke-trematodae) penetrates man's skin when in contact with fresh water. The parasites transforms into schistosomulae as they pass through the lungs and are carried by the blood stream to the liver. While in the lungs, they inflame the alveolar tissue and cause pneumonitis.

"Pneumonitis is characterized by increased respiratory disability" (Martin, A. 1999). Further, in the liver, parasites cause hepatitis with symptoms such as drowsiness, confusion and difficulties in performing tasks. Within 4-6 weeks of infection, they migrate to the venules which drain the pelvic viscera where the females deposit ova. The schistosome eggs pass through the walls of the bladder and rectum where they cause severe irritation. Pathologically, haematuria results due to erosion of the bladder wall. "Later within years, fibrous and calcification and the ureters, bladder, cervix and seminal vescicles will take place" (Merk Manual, 1999).

The chronic irritation and calcification of the bladder, liver is what accounts for bladder and hepatic carcinoma. The pathophysiology above affirms a (2004) recent study by Ministry of Education in Eastern Province. The study reviewed that Bilharzia causes pupils not to perform well in class hence, reducing children's potential for education.

"Infection with Bilharzia weakens children if untreated, the infection has the capacity to reduce the development potential of the entire nation" (Ministry of Education, 2005).

Mbala DHMT has since embarked on health education in schools, targeting school children. The community is also targeted through Neighbourhood Health Committees (NHCs) and teachers. The other measure employed by the DHMT is provision of drugs for the treatment of Bilharzia. Further the DHMT has embarked on capacity building workshops, seminars for health staff on schistosomiasis mitigation. Despite all the already available interventions, the prevalence rate of Bilharzia is still being reported as being high (see the table below):

Table 1: Bilharzia by Total Incidence (1999-2005)

year	NUMBER OF CASES
1999	150
2000	86
2001	218
2002	91
2003	264
2004	214
2005	24 (First quarter)

Source: Mbala DHMT, 2005

1.3 FACTORS INFLUENCING THE PREVALENCE OF BILHARZIA

Several factors may influence the prevalence of schistosomiasis in Mbala. These factors will be discussed as follows:

1.3.1 Knowledge-Related Factors

the knowledge on schistosomiais may play a role in preventing the disease. It may be that people in Mbala District may not have adequate knowledge on Bilharzia prevention and control. Information, education and communication (IEC) is key to knowledge. This positively affects behaviour of individuals, groups and families. Inadequate sensitization on the need to avoid bathing and swimming in stagnant water and discouraging urinating in bushes may contribute to high prevalent of Bilharzia.

The Zambia Bilharzia Control Initiative's goal is to reduce Bilharzia morbidity through impartation of knowledge on prevention of Bilharzia (CBoH, 2005). Teaching people to construct good sanitary facilities, clean water channels so that water flows faster thereby making snail breeding difficult may contribute to lower the morbidity of Bilharzia.

1.3.2 Therapeutic Compliance Related Factors

Bilharzia control could be achieved not only through preventive measures but also through treatment measures. Ridicule chemotherapeutic measures may reduce the incidence of schistosomiasis. "Schistosomes if untreated can remain in the human body for as long as 20 years" (Davidson, 1989). This means that an individual remains a carrier of the disease, and continue to pass schistosoma through urine and faeces, hence increasing morbidity. "The high incidence of untreated cases of Bilharzia contribute to the high prevalence of Bilharzia (Chibolyo, 1991). The infection with

schistosomiasis is mild in most cases. This situation may cause infected individuals not to comply with therapeutic measures.

The education level of an individual my have a bearing on compliance. Educated people are likely to comply to treatment than individuals with low educational level. Parental influence also plays a role. Children entirely depend on their guardians encouragement. Parents who are educated may encourage their sick children to complete the treatment course as well as honouring review dates. The age of an individual may play a role in compliance to treatment. In most cases, older children are likely to comply with treatment as well because they can understand instructions than younger children.

1.3.3 Water and Sanitation Related Factors

A clean environment reduces the risk of disease. Poor sanitation is a medium for the high prevalence of schistosomiasis. The situation of poor sanitation allows for passing of urine and faeces in the open especially near water sources. The types of toilets which are in Mbala are mostly pit latrines which are poorly constructed having no doors and roofs. These toilets are constructed in the midst of the houses and it is difficult to tell who owns a toilet. The poor state of latrines makes it possible during the rain season to wash away faeces and contaminate water sources. Sometimes, local people may prefer to use bushes to pit latrines. This perpetuates the spread of schistosomiasis. "The people are exposed to schistosomiais infection because of inadequate sanitary facilities" (WHO, 1992).

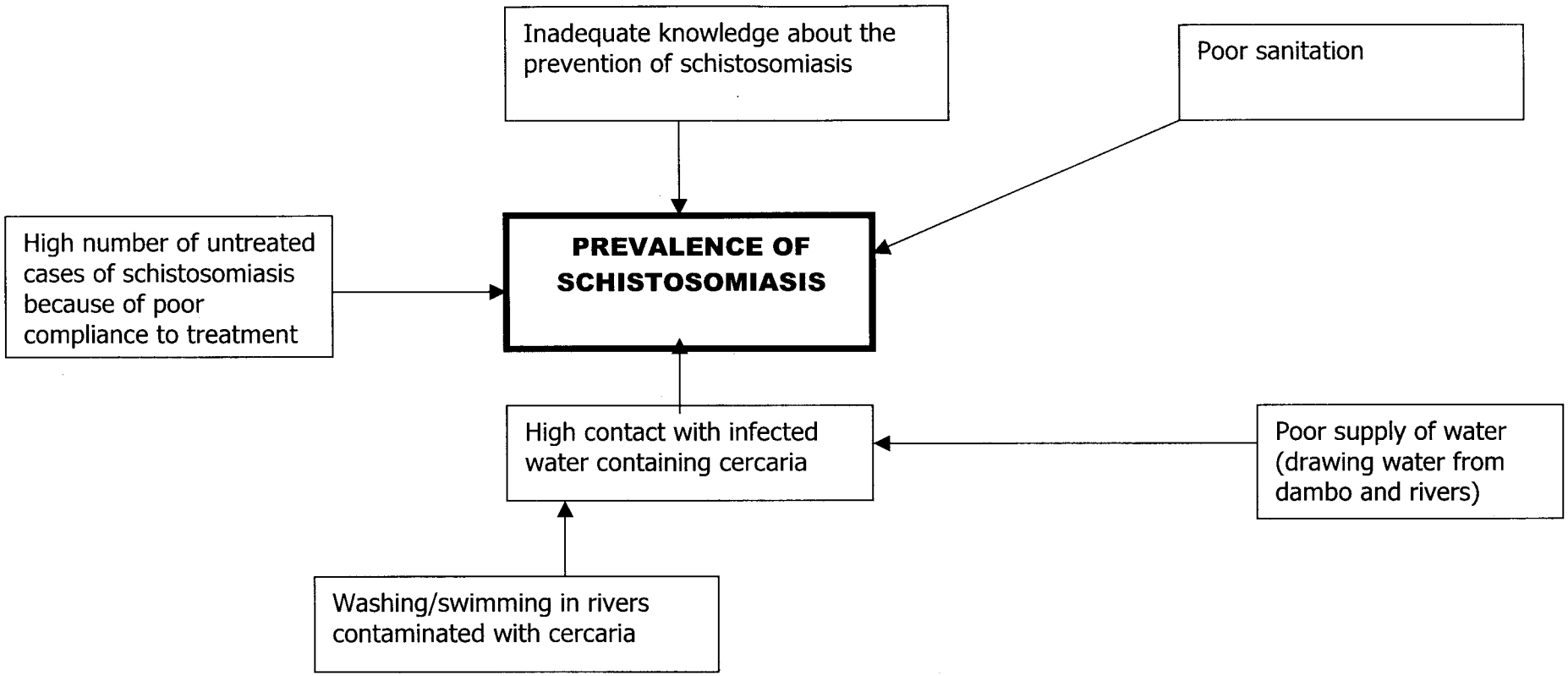
The snails which are intermediate hosts for Bilharzia breed in ponds, swamps and slow flowing streams and rivers. The people in Mbala rural live near streams and fetch water and bath from the same rivers. This situation allows the people to get in contact with fresh river water which predisposes them to schistosomiais.

Water is an essential commodity which must be made available in the home 24 hours. The situation in Mbala is that, people who access tap water do so only in the mornings most households go without running tap water in the afternoons. The people resort to drawing water from the nearby (Lake Chila) hence predisposing themselves to schistosomiasis.

CONCLUSION

Factors contributing to the high prevalence rate of schistosomiasis in Mbala may include inadequate knowledge on prevention of schistosomiasis, poor compliance to the treatment of schistosomiasis and high contact with infected water.

1.4 PROBLEM ANALYSIS OF FACTORS CONTRIBUTING TO THE PREVALENCE OF SCHISTOSOMIASIS IN MBALA



(Fig 1)

1.5 JUSTIFICATION OF THE STUDY

This study seeks to determine the factors contributing to high prevalence of schistosomiasis among school going children in Mbala District. Schistosomiasis affects the physical development of children. They become unhealthy, therefore cannot be productive in and out of school. This will affect their future development as they grow into adulthood.

The complications which arise from schistosomiasis can lead to ill health in future. These may include cancers such as cancer of the bladder and anaemia it has been reported.

"School going children are expected to be healthy and thereby enhancing the quality of education. School age children are the most affected with schistosomiasis" (Ministry of Education, 2005). Mbala has been experiencing a high prevalence of schistosomiais. The latest data by total incidence rate for the year 2004 review 214 cases of schistosomiasis. In view of the above, I am prompted to undertake a study in order to identify factors that may be contributing to the high prevalence of schistosomiasis. It is also hoped that the study finding will be used in the formulation of policies and strategies to reduce the high prevalence of schistosomiais in Mbala.

1.6 RESEARCH OBJECTIVES

1.6.1 General Objective

To determine factors leading to high prevalence of Bilharzia among school going children aged between 7-17 years in Mbala District and come up with recommendations.

1.6.2 Specific Objectives

- To assess the knowledge levels of school going children in Mbala District about schistosomiasis.
- To identify recreational and occupational practices of school going children in Mbala in relation to schistosomiasis.
- To assess the level of compliance to schistosomiais treatment among school going children

1.7 HYPOTHESIS

The following are the predictions made on the relationships between the variables under study. The variables would be formulated from the same hypothesis.

- Poor compliance to treatment regimen of schistosomiasis contributes to its prevalence.
- Inadequate information about schistosomiasis contributes to its prevalence.
- Poor water and sanitation supply contribute to prevalence of schistosomiasis.

1.8 OPERATIONAL DEFINITIONS

1.8.1 **Schistosomiasis:** A parasitic disease caused by blood flukes of the class trematoda.

1.8.2 **Knowledge:** Able to state correctly the cause and prevention of schistosomiasis.

1.8.3 **Sanitation:** An arrangement of a rubbish pit for refuse and toilet for excreta dispatch.

1.8.4 **Water Supply:** A place where water is drawn from.

1.8.5 Excreta Disposal: Refers to where faeces and urine are got rid of.

1.8.6 **Water Contact:** Refers to walking, stepping or working in water contaminated with cercaria.

1.8.7 **Compliance:** Being able to take and complete the treatment regimen of a disease (schistosomiasis)

1.8.8 **Practice:** Actual use of activities that may contribute to prevention or acquisition of schistosomiasis through water contact.

1.8.9 **Prevalence:** Actual number of old and new cases of Bilharzia among a population under study in Mbala.

1.9 VARIABLES AND CUT-OFF POINTS

VARIABLES	INDICATORS	CUT OFF POINTS
Dependent Variables		
Prevalence of schistosomiasis	Number of cases of schistosomiasis	• More than 6=high • Less than 5=low
Independent Variable		
Knowledge	Able to state correctly the cause and prevention of schistosomiasis	• >4=good • <3=poor
Contact with water	• walking, stepping • swimmy, washing in water contaminated with cercaria	• >5=low • <4=high
Compliance to treatment regimen	• able to complete chemotherapy course	Good
	• unable to complete chemotherapy course	Poor

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Schistosomiasis is a parasitic infection which posses a threat to human life. Although the disease kills few people, Davidson (1999), points out that schistosomes can remain in the human body for more than 20 years with serious chronicity effects. Some of such effects include cancer of the bladder and anaemia.

The literature review will highlight clinical details, global, regional and national perspectives and the situation obtaining in Mbala District concerning schistosomiasis.

2.1.1 CLINICAL DETAILS

Schistosomiasis is caused by blood flukes of the class Trematodu, Coebs, et al (1998). The parasite is transmitted through bathing, swimming, wading or working in water contaminated with schistosoma larve which are known as cercariae during their infective stage.

The ovum is passed in the urine or stool of infected individuals and gains access to fresh water where the miracidium inside is liberated and enters its intermediate host (snail) in which it multiplies. Large numbers of carcaria are liberated into the water where they survive for 3-4 days.

Carcaria can prenetrate the skin or mucous membrane of their definitive host (man). They transform into schistosomulae as they pass through the lungs and are carried by the blood stream to the liver and portal veins where they mature.

Within 4-6 weeks of infection, they migrate to the vessels which drain the pelvic viscera where the females deposit ova. The eggs of schistosomes pass mainly through the walls of the bladder and rectum. The pathological changes and symptoms of schistomiasis largely depend on the stage of infection. Within days of cervaria penetration, there is a popular demartitis at the site of penetration. Within weeks and as the larva migrates, to the lungs and the liver, there is typical pneumonitis and hepatitis respectively within months and following depositions on of eggs, there is cystitis and haematuria.

"Later within years, fibrosis and calcification of the ureters, bladder hydronephrosis, seminal vesicles and cervia will take place. Further, carcinoma, calculi and portal hypertension ensures in late stages" (Merk Manual, 1999).

2.2 GLOBAL PERSPECTIVE

In 1965, an official worldwide estimate was 180-200 million infected persons and it was concluded that schistosomias was endemic in 73 countries (La Rotsk and Davis, 1981). As opposed to the 1965 study, it was estimated that at least 76 countries are affected and that 500 million are at risk (WHO, 1990).

Study by WHO Health Experts (1987) has argued that people are exposed to infection because of poverty, ignorance, poor housing, substandard hygienic practice and inadequate sanitary facilities.

Surprisingly, a global surveillance study highlights that, affected people do not bother about seeking medical attention because many people have lighter infection and few symptoms (WHO, 1992).

"Worldwide demand for water has resulted in the spread of schistosomiasis to new areas and the overall infection rate appears to

have increased. Since the above estimate was arrived at (2000 million cases, WHO, 1990) the world population has continued to increase with an enlargement, in most endemic areas in the lower strata of the population pyramid such as an increase in the age groups known to have the highest prevalence of disease and to be most responsible for transmission."

WHO (1990) published a report after a study on the exposure of United States of America Army personnel in the Philippines to schistosomiais that most of the exposure was related to inadequate knowledge on the mode of infection, the presence of carvariae in water and their penetration of the skin.

A study by Yokogamar (1973) brings to light the fact that chances of decreasing schistosomiasis are possible. In Japan, schistosomiasis was endemic but today Japan boosts of a success control measure which led to a decrease in prevalence.

Other studies done:

- In Taiwan indicate that schistosomiais is enzootic but man is not infected (Santos, 1977)
- In Thailand, schistosomias has been found at autopsy but it is doubtful whether transmission occurs in natural (Nidtaga Sudtin, et al, 1975).

Having appreciated the concept that control of schistosomiasis depends on a profound understanding of the epidemiology of the disease and in particular of the biology, ecology and distribution of the parasites, their snail intermediate hosts and mammalian reservoir hosts. WHO (1992) expert committee on schistosomiasis control made many advances to control the disease. A marked involvement towards an integrated approach to control schistosomiasis than reliance on single control use

such as use of chemotherapy, molluscisiding technique, supply of water at community level provision of sanitation and continuing health education and socio economic improvements (WHO, 1980).

These measures however succeed to decrease the prevalence of schistosomiais in the developed world, such as Japan, (Yokogama, 1973).

Ane Harland (1995) argues that health education is a key to successful mitigation of schistosomiasis and suggests further that, the reason why health education tends not to work is that it is not properly done hence inadequate knowledge and malpractices.

Chen xn Yi et (1998) in her study "to investigate compliance with chemotherapy in heavy schistosmiasis endemic areas" she discovered and reported that, knowledge about schistosomiasis helps to create positive practices towards schistosomiasis.

"Western countries are less likely to accommodate schistosomes in the sense that genera of snails responsible dislikes deep slide deep water turbid due to suspended water; sudden fluctuations in water level; wave action, heavy pollution due to industrial wastes" (Robinson and Wilson, 1977).

Schistosomiasis has a restricted distribution in south east and eastern Asia, where some 5% of the world's population is estimated to live in the endemic areas (Mott, 1982).

2.3 REGIONAL PERSPECTIVE

Schistosomiasis is one of the most widespread parasitic infection of man, second to malaria in local socioeconomic in tropical regions (Robinson, 1990)

Schistostome eggs have been found in Africa specifically Egypt dated 1250 BC Davidson (1990). Schistosoma haematobium species was discovered by theology bilharzias, in Cairo, Egypt in 1861 and the genus is sometimes called bilharzias, Carpenito L. J. (1997).

It therefore follows that schistosomiasis has been reported in many parts of Africa. These include West Africa, Northern Africa, Central Africa, East Africa and Southern Africa where Zambia is found.

According to a report of a WHO expert committee all the epidemiology and control of schistosomiasis (1980), it is stressed that the ultimate success of any control programme is dependent upon comprehensive of socioeconomic conditions of the population living in Africa where schistosomiasis is mostly endemic.

The experts further reported that an increase in water resources development programmes in Africa has contributed to endemicity of schistosomiais especially in areas around man made lakes and irrigation schemes.

Demand for water in Africa has resulted in the spread of schistosomiasis to new areas and the overall infection rate appears to have increased (WHO, 1980). The compilations by WHO derived from the literature covering the years 1969-77, from 19 selected African countries clearly state that in general terms that projects for water resources development, poor water and sanitation supply have increased transmission of schistosomiasis in many endemic areas of Africa such as Egypt, east cost of Africa and the adjacent islands, Israel, the whole of Central and Southern Africa.

Schistosomiasis haematobulin is widely distributed throughout Africa being especially prevalent in west and east Africa in Egypt and the Sudan and in the countries bordering the Mediterranean. It is prevalent also in Madagascar, Mauritius and in parts of the Middle East. A small focus of infection has been recognised in India, near Bombay.

Schistosoma mansoni has a much more focal distribution in Africa being present in Libya ad extensively in the Nile Delta, in the upper Nile south of Khartoum, throughout equatorial Africa in west, east and central Africa from Eritrea, Zimbabwe with a few foci in Natal.

In another study by Davy and Wilson (1977) there is an argument that the high prevalence of schistosomiasis in Africa is related to some extent due to presence of slow flowing streams, too much sunlight, light shady firms and mud bottom rich in decaying matter environment broad-leated, vegetation which supports their egg-masses and irrigation such environments are common in Africa hence high prevalence rates.

A study done by Gujral L. (2000) to determine risk behaviours and level of knowledge among school children concerning schistosomiasis in Maputo-Mozambique revealed that the highest prevalence was in the 15 year old age group of which these majority of these children were not aware about mode of transmission of schistosomiasis.

2.4 NATIONAL PERSPECTIVE

The decline in Zambia's economy has led to difficulties in the provision of socio services to the communities, such as provision of safe water supply, sanitation and health education. This unfortunate situation has led to high morbidity rates from largely preventive and treatable diseases, such as schistosomiasis.

In the study by Chirwa (1996), it was found that there is a relationship between the level of education and knowledge about schistosomiasis in that the more years one spent in school the more knowledgeable they were.
In another study by Ngwengwe (1997) it was revealed that the people in low lands are more likely to have schistosomiasis than those in high land. This could be related to mud streams with decaying water which are favourable environments for ccercaria and micradium.

Schistosomiasis is more in boys than girls especially those whose parents are farmers. This is as per study done Mr. Mbulo, A, (1997) in Mwense.

A study by Pumulo, P. 2002 in Kaoma revealed that most of his respondents had knowledge on schistosomiasis but poor practice, towards schistosomias. This is related to their poor economic status as most of them are farmers.

On 21st June, 2005, Ministry of Health in conjunction with Ministry of Education launched the "Zambia Bilharzia Control Programme." This programme aims to treat 2 million Zambians infected with this debilitating infection" (CBoH, 2005). This programme will in turn lower the prevalence rate of schistomiasis.

Zambia National Broadcasting Television report highlighted that 2 million Zambians are infected with schistosomiasis of which the most affected are children under 18 years in Siavonga. "Eight (8) ten (10) children who live near rivers are infected with schistotomiasis" (CBoH, 2005).

The Zambia Bilharzia Control Programme aims to treat approximately 1,400,00 school aged children in Eastern, Southern, Central and Lusaka

Province by the end of three (3) years (Zambia Bilharzia Control Programme, 2005). By 2007, the programme will be expanded to cover the rest of the country.

Mbala district had been experiencing a high prevalence rate of people suffering from schistosomiasis as seen in outpatient records. The available data reveal that the most affected places are Munyezi, Mwamba, Chozi, Isofu, Chisanza. These areas are surrounded by streams swamps and dambos respectively.
(Mbala DHMT, 2005)

Literature reviewed from 1999 up to 2005 first quarter on schistosomiais in Mbala by total incidence spells out about 1037 cases.

A study by Chibolyo, D. 1988 in Mbala revealed that, high number of untreated cases contributed to occurrence of Bilharzia in Mbala. This may be so because infected individuals spread the disease to others.

2.5 CONCLUSION

From the discussion above, literature has revealed that about 200 million people globally are exposed to schistosomiasis infection. Most reports have argued that people are exposed to the infection because of poverty, ignorance, poor housing, substandard hygienic practice and inadequate sanitary and water supply facilities. A profound understanding of the epidemiology of the disease and in particular of biology, ecology and distribution of parasites, their snail host and mammalian reserviour hosts would help to control the spread of Bilharzia. Countries such as Japan have endorsed this principles and today boost of a successful story in decreasing the prevalence of schistosomiasis.

In Africa, schistosomiasis one of the most widespread parasitic infection of man second to malaria (Robinson, 1977). In Zambia, Bilharzia infects more than 2 million mostly disadvantaged people, of which, school going children are most affected.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

The term methodology means "a set of principles for doing something", (Longman, 1991). Polit and Hungler (1995) defines Research Methodology as "the steps, procedures, and strategies for gathering and analyzing the data in a research investigation".

Chapter three describes the description of the sampling plan, research design, research setting, and the way data was collected. Further, ethical consideration, the way data was analysed and how findings where disseminated.

3.2 RESEARCH DESIGN

This is a programme to guide a researcher in collecting, processing, analyzing and interpreting data. "A research design is an overall plan for how to obtain answers to the questions being studied and how to handle some of the difficulties encountered during the research process." (Polit and Hungler, 1995).

In this study, a descriptive non-experimental design was used. This design was appropriate for the study because it involved collection of data with the aim of describing the elements as they were. In addition to that, this study design did not generate control over subjects. The design was less expensive and not time consuming.

3.3. RESEARCH SETTING

"This refers to the physical location and conditions in which data collection takes place in a study." (Polit and Hungler, 1995). The tool that was used to collect data was a structured interview schedule. This tool helped to collect information directly from respondents.

3.4 Structured Interview Schedule

"This is an approach to collect information from subjects, wherein the researcher determines in advance the response categories of interest." (Treece and Treece, 1986). Information was collected face to face from the respondents using a structured interview schedule. A structured interview schedule was designed to solicit information and it contained both closed and open ended questions. The open ended questions gave an opportunity to explore and clarify issues.

The structured interview schedule was chosen because was be easy to administer considering limited time. Analysis and interpretation of data was easily accomplished. However, the interview schedule had limitations in terms of printing the interview schedule for each respondent.

Data was collected over a period of 3 weeks in the month of September from 4 basic schools in Mbala. The respondents were interviewed in a private room. This ensured privacy and prevented influence from the external environment.

The study was conducted in Mbala district, Northern Province, Zambia. Mbala is 1,067km from Lusaka (capital city of Zambia) and 167km from Kasama (provincial headquarters). The district had a population of 167,671, (2000, CSO)..

Mbala district was chosen for the study because of convenience accessibility and cost effective. The prevalence rate of schistosomiasis was high (214 for 2004) (Mbala DHMT) and hence it became an ideal setting for the study.

3.5 STUDY POPULATION

Study population "is an aggregate or totality of all objects or members that conform to a designated set of specifications."
(Polit and Hungler, 1995). The study population comprised children aged 7-18 years in Mbala rural primary and basic schools.

3.6 SAMPLE SELECTION

Sampling is a "process of selecting a portion of the population to represent entire population." (Polit and Hungler, 1995). Random sampling is "a selection of subjects which allows every unit in the total population an equal opportunity to be included in the sample" (Treece and Treece, 1986).

A simple random sampling method was used. Mixed names of rural schools were put in a box. The papers were shuffled and the required number of schools were picked. Every 3rd child in the register was subject for data collection.

3.7 SAMPLE SIZE

A sample is "a subset of a population selected to participate in a research study" (Dempsey and Dempsey, 2000).

The sample size was 50 school going children. The children were picked from the 4 rural basic schools of Mbala District which were selected at random. The sampling method involved picking every 3rd child from their respective school register because it was manageable considering the available finances and time.

3.8 VALIDITY

Validity is the "degree to which an instrument measures what is intended to measure" (Polit and Hungler, 2001). In order to ensure validity, all the variables under study were covered in the interview

schedule guide. The questions were clearly constructed. The pilot study also helped to determine validity.

3.9 RELIABILITY

Reliability is the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure."
(Polit and Hungler, 2001)

Reliability of the instrument was measured during the pilot study. The data collection on each respondent was standardized. The questionnaire brought out accurate information, whereby if the same instrument was used after some time, it woud be able to produce the same response.

3.10 PILOT STUDY

A pilot study is a "small scale study conducted before the main study on a limited number of subjects about 10% of the actual study sample." (Treece and Treece, 1986). The purpose of the pilot study is to test validity and reliability of the instrument.

A pilot study was conducted at Chila Basic School in Mbala urban. This was in order to identify problem areas with the proposed instrument and protect the instrument for final use. The pilot study helped to amend, omit or add questions of interest.

3.11 ETHICAL CONSIDERATION

Reynolds, P. (1972), says, "What is ethically and morally acceptable in research is the protection of human subjects."

Before conducting the research , permission was sought from the District Commissioner. Permission was also obtained from the District Education Officer and the District Director of Health. Individual

respondents were considered for permission verbally. Assurance of confidentiality and privacy when collecting information was observed. Names of subjects did not appear on the questionnaire. Further, clearance was obtained from the Head, Department of Post Basic Nursing.

CHAPTER 4.

DATA ANALYSIS AND PRESENTATION OF FINDINGS.

INTRODUCTION.

The findings presented in this chapter were obtained from 50 respondents who were interviewed in 4 rural basic schools namely Chianga, Ndundundu, St Pauls and Uningi Basic schools, in Mbala District, Northern province, Zambia.

DATA ANALYSIS

"Data analysis is the process of carefully scrutinizing data by placing it in categories, calculating the mean and applying statistical procedures". (Treece and Treece, 1986).

The raw data was edited for accuracy and completeness. Responses for opened ended questions were categories and coded. Data was analyzed manually and entered on a data master using a manual calculator. This made it easy to draw frequency tables and cross tabulations of different variables.

PRESENTATION OF FINDINGS.

Data from the manual master sheet were presented in graphs frequency tables and cross tabulations. Cross tabulation is a technique of comparing two or more variables, testing relationships and finding the coloration between two variables. This is sometimes referred to as multivariate analysis which means that 3 or more variables are being analyzed simultaneously. (Treece and Treece 1986).

The tables used to present the findings because they are a most effective and simple way of communicating the result of a study. Through the tables, statistical data can be put together as a basis for computing.

DEMOGRAPHIC DATA OF RESPONDENTS (n=50)

TABLE 1.

VARIABLE		**FREQUENCY**	**RELATIVE FREQUENCY (%)**
AGE	7-10	10	20
	11-14	24	48
	15-18	16	32
	TOTAL	**50**	**100**
SEX	MALE	23	46
	FEMALE	27	54
	TOTAL	**50**	**100**
TRIBE	MAMBWE	28	56
	LUNGU	4	8
	NAMWANGA	6	12
	BEMBA	12	24
	TOTAL	**50**	**100**
RELIGION	CHRISTIAN	50	100
	ISLAM	-	-
	HINDU	-	-
	TOTAL	**50**	**100**
EDUCATION LEVEL	1-3	10	20
	4-6	22	44
	7-9	18	36
	TOTAL	**50**	**100**

The demographic data showed that the majority of the respondents were aged 11-14 years (48%) out of which were 23 (46%) males and 27 (54%) females. Majority (56%) were Mambwe by tribe. All the respondents were Christians were 50 (100%). Majority of the respondents were in grade 4-6.

TABLE 2.

RESPONDENTS KNOWLEDGE ON TRANSMISSION OF BILHARZIA.

TRANSMISSION	FREQUENCY	RELATIVE FREQUENCY (%)
WITCHCRAFT	11	22
CONTACT WITH INFECTED WATER	24	48
CONTACT WITH SICK PEOPLE	15	30
TOTAL	**50**	**100**

Majority of the respondents 24(48%) stated that one can get Bilharzia through contact with infected water.

TABLE 3.

RESPONDENTS KNOWLEDGE ON THE COMMONEST SIGN OF BILHARZIA.

COMMONEST SIGN	FREQUENCY	RELATIVE FREQUENCY (%)
BLOOD IN URINE	24	48
PUR IN URINE	14	28
COUGHING	12	24
TOTAL	**50**	**100**

The majority of the respondents 23 (46%) stated that haematuria is the commonest sign of Bilharzia while 12 (24%) stated that it was coughing.

TABLE 4.

RESPONDENTS KNOWLEDGE ON BILHARZIA TREATMENT.

WHERE BILHARZIA IS TREATED	FREQUENCY	RELATIVE FREQUENCY (%)
HOSPITAL TREATMENT	33	66
TRADITIONAL TREATMENT	17	34
TOTAL	**50**	**100**

Majority 33 (66%) of the respondents stated that Bilharzia is treated by hospital medication.

TABLE 5.

RESPONDENTS KNOWLEDGE ON WHETHER BILHARZIA HAS A CURE OR NOT.

RESPONSES	FREQUENCY	PERCENTAGE (%)
YES	37	74
NO	13	26
TOTAL	**50**	**100**

The majority 37 (74%) of the respondents stated that Bilharzia has a cure, while 13 (26%) stated it did not.

TABLE 6.

RESPONDENTS KNOWLEDGE ON PREVENTION OF BILHARZIA.

PREVENTION	FREQUENCY	PERCENTAGE (%)
AVOID CONTACT WITH INFECTED WATER	23	46
AVOID HAND SHAKING	18	36
BOIL DRINKING WATER	9	18
TOTAL	**50**	**100**

Majority of the respondents 23 (46%) stated that one prevents Bilharzia by avoiding contact with infected water. 18 (36%) by avoiding hand shaking.

TABLE 7.

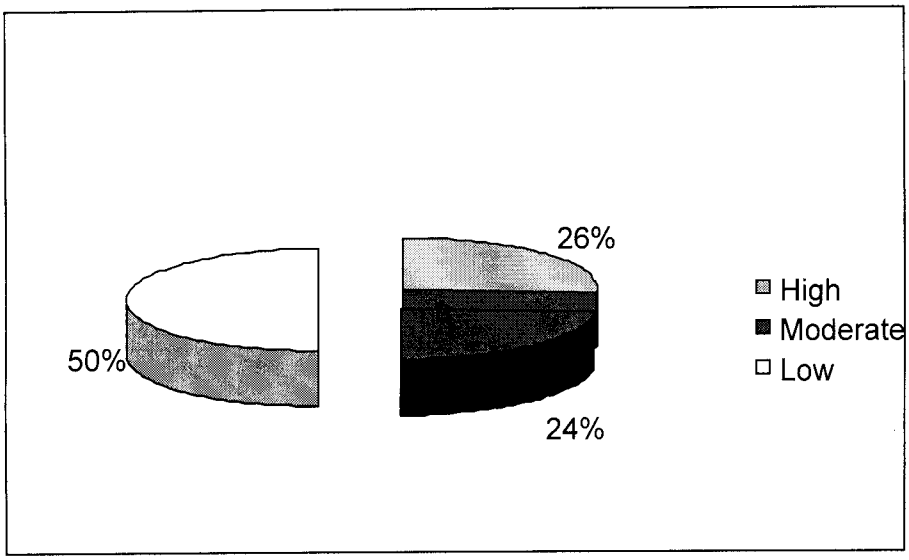
RESPONDENTS KNOWLEDGE STATUS ON WHETHER BILHAZIA IS TAUGHT IN SCHOOL.

RESPONSE	FREQUENCY	RELATIVE FREQUENCY (%)
YES	15	30
NO	35	70
TOTAL	**50**	**100**

The majority of the respondents 35 (70%) stated that Bilharzia is not taught in schools.

FIGURE 1

RESPONDENTS KNOWLEDGE STATUS ON BILHARZIA.



Half of the respondents 25 (50%) had low knowledge on Bilharzia and 13 (26%) had high knowledge.

TABLE 8.

EDUCATION LEVEL IN RELATION TO KNOWLEDGE OF RESPONDANTS.

KNOWLEDGE LEVEL	GRADE OF RESPONDENTS			TOTAL
	1-3	4-6	7-9	
HIGH	-	5 (23.8%)	10 (55.6%)	15 (30%)
MODERATE	1 (9.1%)	6 (28.6%)	3 (16.7%)	10 (20%)
LOW	10 (90.1%)	10 (47.6%)	5 (27.7%)	25 (50%)
TOTAL	**11 (22%)**	**21 (42%)**	**18 (36%)**	**50 (100%)**

The table above shows that the majority of the respondents 10 (90.1%) had low knowledge on Bilhazia and were in grade 1-3. Those with high knowledge (55.6%) were in grade 7-9.

TABLE 8

KNOWLEDGE IN RELATION TO AGE OF RESPONDENTS.

KNOWLEDGE	**AGE OF RESPONDENTS**			**TOTAL**
LEVEL	**7-10**	**11-14**	**15-18**	
HIGH	-	8 (34.8%)	5 (31.3%)	13 (26%)
MODERATE	2 (18.2%)	6 (26.1%)	6 (37.5%)	14 (28%)
LOW	9 (81.8%)	9 (39.1%)	5 (31.3%)	23 (46%)
TOTAL	**11 (22%)**	**23 (46%)**	**16 (32%)**	**50 (100%)**

The table shows that respondents aged 11-14, 8(34.8%) had high knowledge and those aged 7-10 had low knowledge 5(31.3%).

TABLE 9 knowledge in relation to sex of respondents.

KNOWLEDGE	**SEX OF RESPONDENTS**		**TOTAL**
	MALE	**FEMALE**	
HIGH	5 (21.7%)	8 (29.6%)	13 (26%)
MODERATE	8 (34.8%)	4 (14.8%)	12 (24%)
LOW	10 (43.5%)	15 (55.6%)	25 (50%)
TOTAL	**23 (46%)**	**27 (54%)**	**50 (100%)**

The above table shows that female respondents 8(29.6%) had high level of knowledge. 10 (43.5%)of males had low level of knowledge on bilharzia.

TABLE 10. RESPONDENTS SOURCE OF WATER.

SOURCE	FREQUENCY	RELATIVE FREQUENCY (%)
STREAM/RIVER/LAKE	36	72
TAPS	4	8
WELLS	10	20
TOTAL	**50**	**100**

Majority of the respondents 36(72%) got water from streams ,rivers and lakes.

TABLE 11. Respondents village , school proximity to rivers .

PROXIMITY TO RIVERS	FREQUENCY	PERCENTAGE (%)
YES	50	100
NO	-	-
TOTAL	**50**	**100**

The table shows that 50 (100%) of the respondents village , school were near rivers.

TABLE 12 Respondents Fishing status.

FISHING STATUS	FREQUENCY	PERCENTAGE (%)
YES	43	86
NO	7	14
TOTAL	**50**	**100**

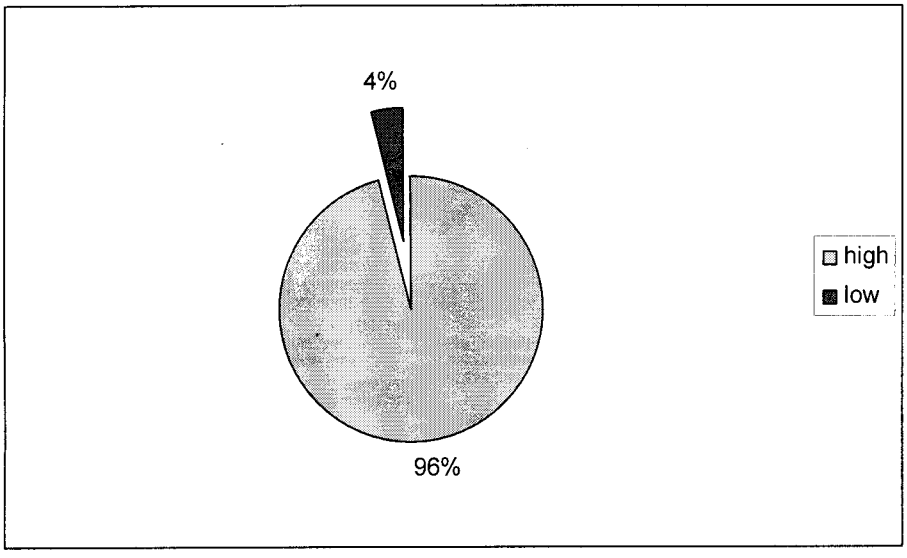
The majority of the respondents 43(86%) go fishing in the nearby rivers.

TABLE 13. Respondents fishing status in the river.

SWIMMING STATUS	FREQUENCY	PERCENTAGE (%)
YES	46	92
NO	4	8
TOTAL	**50**	**100**

The table shows that majority of the respondents 46(92%) go swimming in the nearby rivers.

FIGURE 2. RESPONDENTS WATER CONTACT STATUS



The figure above shows that most of the respondents 48(96%)had a high water contact while 2(4%) had a water contact.

TABLE 14 Respondents water contact in relation to age.

WATER CONTACT	RESPONDENTS AGE			TOTAL
	7-10	**11-14**	**15-18**	
HIGH	11 (100%)	22 (91.7%)	15 (100%)	48 (96%)
LOW	-	2 (8.3%)	-	2 (4%)
TOTAL	11 (22%)	24 (48%)	15 (30%)	50 (100%)

The table above shows that majority of the respondents 22(91.7) who had high water contact were aged between 11 and 14 years.

TABLE 15.Respondents water contact in relation to sex.

WATER CONTACT	RESPONDENTS SEX		TOTAL
	MALE	**FEMALE**	
HIGH	23 (100%)	25 (92.6%)	48 (96%)
LOW	-	2 (7.4%)	2 (4%)
TOTAL	**23 (46%)**	**27 (54%)**	**50 (100%)**

The above table shows that majority of the respondents 23(100%) who had high water contact were males. 2 (7.4%) who low water contact were females.

TABLE 16 Respondents water contact in relation to education level.

WATER CONTACT	LEVEL OF EDUCATION			TOTAL
	1-3	4-6	7.9	
HIGH	11 (100%)	20 (100%)	17 (89.5%)	48 (96%)
LOW	-	-	2 (10.5%)	2 (4%)
TOTAL	11 (22%)	20 (40%)	19 (38%)	50 (100%)

The table shows that majority of the respondents 20(100%) who had high water contact were in grades between 4-6. 2(10.5%) who had low water contact were in grade 7-9.

TABLE 17 RESPONDENTS STATUS(N=50)

PASSED BLOOD IN URINE	FREQUENCY	PERCENTAGE (%)
YES	4	8
NO	46	92
TOTAL	50	100

Majority of the respondents 46(92%) did not pass blood in urine.

TABLE 18 RESPONDENTS STATUS OF SEEKING MEDICAL ADVICE FOLLOWING PASSING BLOOD IN URINE.

SOUGHT MEDICAL ADVICE	FREQUENCY	PERCENTAGE (%)
YES	-	-
NONE APPLICATION	46	92
NO	4	8
TOTAL	50	100

Majority of the respondents 46 (92%) did not seek medical advice because they did not pass blood in urine. 4 (8%) of those who passed blood in urine did not seek medical advice.

TABLE 19.RESPONDENTS STATUS ON GIVING SAMPLE OF URINE FOR BILHARSIA EXAMINATION.

GAVE SAMPLE OF URINE	FREQUENCY	PERCENTAGE (%)
YES	-	-
NO	50	100
TOTAL	**50**	**100**

All 50 (100%) of the respondents did not give samples of urine for bilharzia examination.

TABLE 20.RESPONDENTS STATUS ON RECEIVING TREATMENT FOLLOWING PASSING BLOOD IN URINE.

RECEIVED TREATMENT	FREQUENCY	PERCENTAGE (%)
YES	-	-
NO	50	100
TOTAL	**50**	**100**

All 5(100%) of the respondents did not receive treatment following passing of blood in urine.

TABLE 21 respondents status on not seeking medical advise following passing blood in urine.

RESPONSE	FREQUENCY	PERCENTAGE (%)
DISEASE NOT SERIOUS	4	8
NONE APPLICABLE	46	92
TOTAL	**50**	**100**

The above table shows that 4(8%) of the respondents who passed blood in urine , none of then sought medical advise.

TABLE 22. WATER SOURCE IN RELATION TO PASSING BLOOD IN URINE.

WATER SOURCE	PASSING BLOOD IN URINE		TOTAL
	YES	NO	
RIVERS/LAKES/STREAMS	4 (100%)	33 (1.7%)	37 (74%)
TAPS	-	4 (8.7%)	4 (8%)
WELLS	-	9 (19.6%)	9 (18%)
TOTAL	**4 (8%)**	**46 (92%)**	**50 (100%)**

The table above shows that 4(100%) of the respondents who were passing blood in urine drew water for domestic from rivers

TABLE 23 TRIBE IN RELATION TO PASSING BLOOB IN URINE.

TRIBE	PASSING BLOOD IN URINE		TOTAL
	YES	NO	
MAMBWE	3 (75%)	25 (54.4%)	28 (56%)
LUNGU	1 (25%)	3 (6.5%)	4 (8%)
NAMWANGA	-	6 (13%)	6 (12%)
BEMBA	-	12 (26.1%)	12 (24%)
TOTAL	**4 (8%)**	**46 (92%)**	**50 (100%)**

From the above table, 3 (75%) of the children interviewed who were passing blood in urine were mambwe by tribe.

TABLE 24.GRADE IN RELATION TO PASSING BLOOD IN URINE.

GRADE	PASSING BLOOD IN URINE		TOTAL
	YES	NO	
1-3	-	10 (20%)	10 (20%)
4-6	3 (75%)	20 (40%)	23 (46%)
7-9	1 (25%)	17 (34%)	18 (36%)
TOTAL	**4 (8%)**	**47 (94%)**	**50 (100%)**

The table shows that the majority of the respondents who passed blood in urine 3(75%) where in grades 4-6, while 1(25%) were in grades between 7 and 9.

TABLE 25. SEX IN RELATION TO PASSING BLOOD IN URINE .

SEX	PASSING BLOOD IN URINE		TOTAL
	YES	NO	
MALES	4 (100%)	19 (41.3%)	23 (46%)
FEMALES	-	27 (58.7%)	27 (54%)
TOTAL	**4 (8%)**	**46 (92%)**	**50 (100%)**

The table above shows that all the respondents who passed blood in urine 4(100%) were males.

TABLE 26. AGE IN RELATION TO PASSING BLOOD IN URINE.

AGE	PASSING BLOOD IN URINE		TOTAL
	YES	NO	
7-10	1 (25%)	9 (19.6%)	10 (20%)
11-14	-	24 (52.2%)	24 (48%)
15-17	3 (75%)	13 (28.3%)	16 (32%)
TOTAL	**4 (8%)**	**46 (92%)**	**50 (100%)**

The majority of the respondents who passed blood in urine 3(75%) were aged between 15-17 years , while 1(25%) were aged between 7-10 years.

TABLE 27. RESPONDENTS STATUS ON CROSSING THE RIVER BY WADDDING IN WATER.

CROSSING RIVER BY WADDING	FREQUENCY	PERCENTAGE (%)
YES	21	42
NO	29	58
TOTAL	**50**	**100**

Majority of the respondents 29(58%) did not cross the river by wadding in the water.

TABLE 28. Respondents status of people defaecating or urinating in the river.

DEFECATING/URINATING IN THE RIVER	FREQUENCY	PERCENTAGE (%)
YES	43	86
NO	7	14
TOTAL	**50**	**100**

The table shows that majority of the respondents 43(86%) stated that they urinate and defecate near or in the river.

TABLE 29. RESPONDENTS ACTIVITIES INVOLVED IN AFTER SCOOL WORK.

ACTIVITIES AFTER SCHOOL	FREQUENCY	PERCENTAGE (%)
FARMING	28	56
FISHING	10	20
LOOKING AFTER CATTLE	12	24
TOTAL	**50**	**100**

Majority 38(76%) of the respondent's activities involed in after school work was fishing.

TABLE 30. RESPONDENTS STATUS OF OCCUPATIONAL ACTIVITIES PARENTS / GUARDIN INVOLED IN.

GUARDIAN OR PARENT OCCUPATION	FREQUENCY	PERCENTAGE (%)
FARMING	38	76
FISHING	12	24
TOTAL	**50**	**100**

Majority of the respondent's guardian / parent's occupational activities were farming.

FIGURE 3 . RESPONDENTS LEVEL OF HYGINIEC PRACTICE.

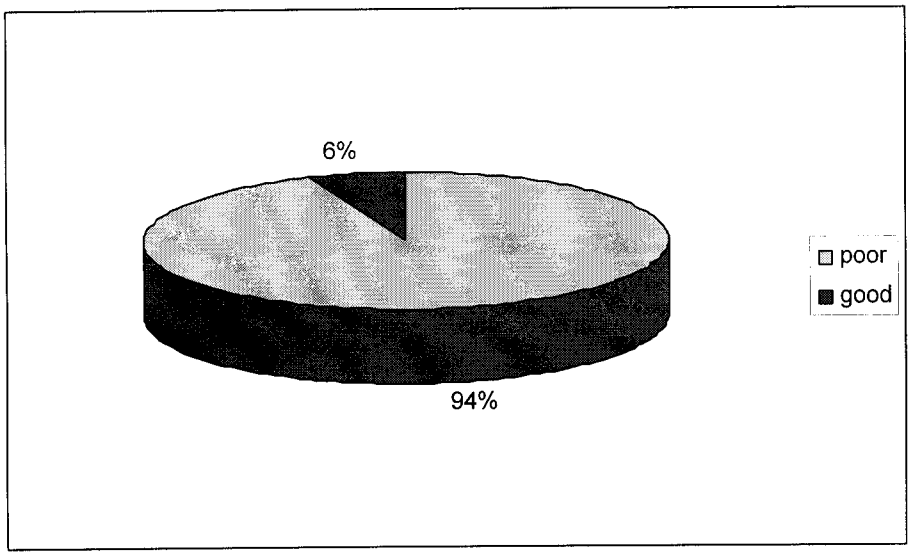


TABLE 31. PRACTICE OF RESPONDENTS IN RELATION AGE.

PRACTICE	RESPONDENTS AGE			TOTAL
	7-10	**11-14**	**15-18**	
GOOD	-	2 (8.3%)	1 (6.7%)	3 (6%)
POOR	11 (100%)	22 (91.7%)	14 (93.3%)	47 (94%)
TOTAL	**11 (22%)**	**24 (48%)**	**15 (30%)**	**50(100%)**

The above table shows that majority of the respondents with poor hygienic practice 22(91.7%) were aged between 11-14years old .

TABLE 32. RESPONDENTS PRACTICE IN RELATION TO GENDER.

PRACTICE	RESPONDENTS GENDER		TOTAL
	MALE	FEMALE	
GOOD	-	3 (11.1%)	3 (6%)
POOR	23 (100%)	24 (88.9%)	47 (94%)
TOTAL	**23 (46%)**	**27 (54%)**	**50 (100%)**

The table above shows that 23(100%) of the males had poor hyginiec practice towards Bilharzia.

TABLE 33. RESPONDENTS PRACTICE IN RELATION TO LEVEL OF EDUCATION.

PRACTICE	RESPONDENTS EDUCATIONAL LEVEL			TOTAL
	1-3	4-6	7-9	
GOOD	-	1 (5%)	2 (10.5%)	3 (6%)
POOR	11 (100%)	19 (95%)	17 (89.5%)	47 (94%)
TOTAL	**11(22%)**	**20 (40%)**	**19 (38%)**	**50 (100%)**

Majority of the respondents with poor practice 19(95%) were in grades 4-6

CHAPTER 5.

DISCUSSIONS OF FINDINGS

INTRODUCTION

The study was aimed at determining factors contributing to prevalence of Schistosomiasis among school going children aged 7-18 years in Mbala District,, Northern province, Zambia. Data was collected from four (4) rural Basic schools namely; Chianga Ndundundu, St Pauls and Unungi. The sample considered 50 respondents (pupils) which were randomly selected. The results are based on the analysis of the responses from the respondents. The underlying assumption behind the study was that there was a high prevalence of Schistosomiasis brought about by a number of variables. These variables included knowledge, water contact, occupation and compliance to treatment.

DEMOGRAPHIC DATA

The demographic data elicited adequate information from the respondents. 54% of the respondents were females while 46% were males (table 1). This could be attributed to the high percentage of females in Mbala District, which stands at 53% CSO (1990).

The majority of the respondents 48% were aged between 11-14 years old. This could be in line with the CSO (1990) census which reported that the Zambians population is young.

Additionally this could also be related to the fact that the study setting targeted children aged 7-18 years. Majority of the respondents (56%) were Mambwes. This is because Mbala is the home land area for the Mambwes.

All the respondents (100%) were Christians. This is in line with Sunday post paper dated 31st July, 2005 on editorial comment concerning the constitution review commissions report. The commission observed that a large number of

petitioners called for retention of the declaration of Zambia as a Christian nation. Observers of the Mwanakatwe (1991) acknowledged that Christian values have contributed to the moral fabric of Zambia.

Majority of the respondents (44%) were in grades 4-6. This is in support of Ministry of Education 1996 report on "educating our future" which seeks to eliminate factors that hinder access and progression on pupils in schools.

This however contradicts with the CSO (1997) report which stated that the proportions of those who are not in school in rural areas are much higher about 45%.

KNOWLEDGE

The study revealed that majority of the respondents in the age group 7-10 years had low knowledge levels on Bilharzia (table 8). This age group represents children who are just entering school and may have not learnt anything in class on Bilharzia.

The study revealed a relationship between the level of education and knowledge on Bilharzia in that the more year's one spends in school the more knowledgeable they were on Bilharzia. This is however contrary to the findings of Congdon R (2001) who said that many people have the knowledge about Bilharzia regardless of number of years they spent in school.

Table 7 shows that majority of the respondents who were in grade 7-9 had high levels of knowledge on Bilharzia (55.6%). This could be attributed to the fact that pupils begin to learn about Bilharzia in upper grades such as grade 5-9.

The results in table 9 show that female respondents had high level of knowledge. This could be attributed to the fact that gender policy and girl child education is taking a right step in empowering girl children with

knowledge. Similar findings were noted in a KAP study of Bilharzia on a rural community in Zimbabwe Chandiwana P>T> (1999) observed that the majority of the respondents who were knowledgeable on Bilharzia were females.

Insufficient knowledge on Bilharzia leads to perpetuating the exposure of individuals to Bilharzia. This is in support of WHOs (1990) report which related the exposure of United States soldiers to Bilharzia as having been perpetuated by inadequate knowledge on the mode of infection spread, presence of cercariae in water and their penetration of the skin.

A study by Gujrai L (2000) to determine knowledge levels among school going children concerning Schistosomiasis in Maputo – Mozambique. Revealed that prevalence of Bilharzia was related to inadequate knowledge about the mode of transmission of schiastomiasis.

Knowledge is power. In Egypt, a country where schistosomiasis was the scourge of the rural communities had recorded successes and is gradually becoming less important as a public health problem. This started from the time praziquantel produced a drop among 30, 000 school children from 90% to 13%. The drop in the prevalence rate of Bilharzia was related to intensive knowledge impartation on prevention, control and compliance to treatment. (Marshall et al 1974).

WATER CONTACT.

Figure 2 show that 96% of the respondents had high water contact. This is attributed to the fact that the four schools and villages from which samples were drawn were proximal to the streams. It is clear that for many, the stream is the main source of water.

Table 14 shows that majority of the respondents (91.7%0 who had high water contact were aged between 11 and 14 years. This is attributed to the

fact that at this age children are adventurous and enjoy swimming in the rivers which are a source of infection.

Table 15 shows that majority of the respondents who had high water contact were males. This is attributed to the fact that males like swimming and fishing in the river. In a similar study by Chibolyo D (1998) on the prevalence of schistosomiasis and in the border areas of Zambia, the study revealed that males are more at risk to bilharzia that females.

Schistosomiasis and water contact are closely linked. WHO (1993) bring to light the fact that high prevalence of schistosomiasis in many parts of the world such as Egypt, is directly linked to human contact with natural water bodies.

Table 16 shows that all the respondents who had high water contact were in grades from 4-6. This is attributed to the fact that pupils who fall in this grade range are very active and expose themselves to water contact recreational and domestic activities such as swimming and washing in rivers and streams.

COMPLIANCE TO TREATMENT.

Figure 3 show that all the respondents (100%) who passed blood in urine had poor compliance to treatment. This was attributed to the fact that schistosomiasis presents with light infection. Because the infection is perceived as serious, most patients decline to seek medical attention hence resulting into complications, such as anemia.

Table 17, shows that the majority of the respondents (92%) did not pass blood in urine. This attributes to the reason why most pupils did not comply to treatment.

Table 18, shows that all the respondents did not give samples of urine for Bilharzia examination. This could be attributed to lack of sufficient information on Bilharzia disease.

In a study by Chibolyo D (1998) on the same subject, it revealed that children who passed blood in urine could not submit urine for laboratory tests. This is related to the cultural beliefs that if laboratory reagents mix with their urine, then they would become infertile.

Table 20 shows that all the respondents (100%) who passed blood in urine did not seek medical attention. From this data, it would appear that people from these areas do not take Bilharzia as a serious disease despite passing blood in urine.

If people do not seek medical advice or do not get treated, they remain potential sources of infection and continue to increase the prevalence of Bilharzia.

Study done by Kakatsiro. M et al (1980) bring to light that ability to seek diagnosis and treatment brought about an increase in knowledge and prevention of Bilharzia in the Nile valley – Egypt from 35% to 77%.

The ability of people to comply with treatment is determined by a lot of factors. They should first and foremost realize the severity of the problem and be aware of the benefits of seeking medical advice as weighed against not seeking medical treatment. If pupils perceive barriers to seek medical treatment, they would not do so. Health workers could go a long way in changing health seeking behavior of pupils which in turn will have an impact on the ability to comply to treatment.

Table 25 shows that all the respondents (100%) who passed blood in urine where males. These points out the fact that the incidence of Bilharzia is high

in males than in females. Traditionally males are natured in such a way that they become bread winners. As a result, starting from young age, they are engaged in water contact activities such as fishing which predispose them to Bilharzia. Further, boys are known to play in water.

This is in support of Chibolyo D (1998) study findings on Bilharzia in which the incidence of Bilharzia in males was 46% while in female it was 44%.

Table 26 shows that the majority of the respondents (75%) who passed blood in urine were aged between 15 to 17 years. This could be attributed to the fact that children in this age group are actively involved in activities such as farming and fishing which predisposes them to Bilharzia. This is in support of Ministry of Education 2005 report that Bilharzia affects most school aged children.

PRACTICE.

Section E of the questionnaire contained questions on respondents level of hygienic practices in relation to Bilharzia. The findings show that 94% of the respondents had poor hygienic practices towards Bilharzia. This is attributed to economic hardships most pupils are faced with as observed by Congdon (2001) who highlighted that Bilharzia incidences are high in areas of poor hygienic practices.

Table 31 shows that the majority of the respondents (91.7%) with poor hygienic practices were aged between 11-14 years. This suggests that this age group is more susceptible to Bilharzia because they are more likely to come in contact with contaminated water. Table 32 shows that all the males (100%) had poor hygienic practices towards Bilharzia. This is attributed to the fact that boys are more hyperactive than girls and are involved in more water contact practices such as swimming and playing in water.

Centrally to the above findings, Pumulo (2002) study on knowledge and practice of adults towards Bilharzia in Kaoma revealed that most female respondents (64.3%) had poor practice while 63.6% male respondents had good practice. This could suggest that females in Kaoma are more susceptible to Bilharzia because they are likely to come in contact with river water than males. Womens roles in families include providing for their families which lead them to soaking cassava in the river. This practice predisposes individuals to Bilharzia.

Table 33 shows that majority of the respondents (95%) with poor hygienic practice were in grades 4-6. this is attributed to the fact that this group is more active and grown up to indulge in curiosity activities such as playing in water, wading in water, urinating and defecating in the river.

If people do not adequately appreciate the implications of Bilharzia due to poor hygienic practices, they would not take measures to prevent Bilharzia hence increasing the prevalence rate.

CHAPTER 6

HEALTH SYSTEM IMPLICATION

There is need to evaluate the factors that contribute to prevalence of Bilharzia and take measures to mitigate the cases. The study has revealed that there is a considerable gap between what is expected in a schistosomiasis endemic area and what is obtaining in Mbala District.

The study pointed out that most of the respondents were not knowledgeable about Bilharzia and so practice water contact behavior that favor the transmission of schistosomiasis. The respondents had negative health seeking behavior in that none of those who passed blood in urine sought medical advice stating that the disease was not serious. There is no control programme in place.

All the above implies that the health workers should take a leading role in advising the community of Mbala especially school going children on the importance of avoiding passing urine and defecating in water. Educating school going children on the dangers of Bilharzia needs to be emphasized as this is an effective tool to fight Bilharzia.

Bilharzia poses a danger of serious complications such as anemia, bladder neoplasms and impotency. If people continue getting infected without getting treated, time will come when the above complications will ensue. The association between the two is undisputable. The need for early treatment and detection remains vitally important to note.

The study revealed that most respondents had a high water contact. This is in line with their proximity to rivers and drawing water from the rivers for domestic use. Additionally, pupils engaged themselves in fishing and swimming in the same after school. This implies that health workers should

have a task to impart adequate knowledge about the transmission of the disease so as to improve the practices of school going children towards Bilharzia.

CONCLUSION.

The study was aimed at determining the factors contributing to high prevalence of schistosomiasis among school going children aged between 7-18 years in Mbala District. The study revealed that low levels of knowledge on schistosomiasis contribute to the high prevalence of schistomiasis. The study findings further showed that poor compliance to treatment and poor hygienic practices contribute to the prevalence of Bilharzias. Further, the study pointed out that there was high water contact levels among the respondents and this predisposes individuals to contract schistosomiasis.

RECOMMENDATIONS.

In view of the findings of the study, the following are the recommendations.

1. There is need for the local authorities to recognize schistosomiasis as one of the priority problems of public health significance. This will assist them device the strategies that will help to combat Bilharzia.
2. There is need t educate the male residents on schistosomiasis, health education on prevention and control of Bilharzia and control of Bilharzia should be given in both schools and communities.
3. A system of data collection should be designed and put in place to keep accurate records on Bilharzia to avoid incorrect reporting of the cases.
4. There is urgent need for further research on the aspect of species to determine the contact sites and come up with an approach to control snail population.

5. Routine surveillance in schools is highly recommended as appropriate. School teachers should be involved and be given elementary training on detection of children with the infection.
6. A control programme should be considered in which provision could be made for free diagnosis and chemotherapy of Bilharzia cases.
7. Government should look into the issue of providing clean water and sanitation to rural people.

DISSEMINATION OF FINDINGS.

Dissemination of findings will be through Executive summaries and written reports. Five (5) copies will be bound and distributed to University of Zambia, Medical Library, Ministry of Health, Post Basic Nursing department, Mbala District Health Management Team and Mbala District Education Office.

LIMITATIONS OF THE STUDY.

1. The study was done within the busy school calendar. This made it difficult to concentrate on the study at the expense of other courses.
2. The size of the sample was small; hence the study findings could not be generalized to a larger population. The size was chosen to accommodate the available funding and time provided for the study.

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THE UNVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

APPENDIX 1

STRUCTRED INTERVIEW QUESTIONNAIRE FOR DATA COLLECTION ON FACTORS CONTRIBUTING TO THE PREVALENCE OF SCHISTOSOMIASIS IN MBALA AMONG SCHOOL GOING CHILDREN AGED 7-17 YEARS

RESEARCH TOPIC: Prevalence of Schistosomiasis in Mbala District

Questionnaire Number: _____

Date of Interview: _____

Place of Interview: _____

INSTRUCTIONS

(i) Greet the respondent

(ii) Introduce yourself to the respondents

(iii) Explain the purpose of the study

(iv) Do not write the respondent's name to ensure anonymity

(v) Explain that the information given will be kept in high confidence

(vi) Kindly tick clearly (√) in the box provided for each question or write your responses in the space (.....) provided.

(vii) Thank the respondent after the interview

SECTION A: DEMOGRAPHIC DATA

FOR OFFICIAL USE ONLY

1. Sex of respondent
   (a) Male
   (b) Female

2. How old where you on your last birth day?
   (a) 7 – 10
   (b) 11 – 14
   (c) 15 – 17

3. What tribe are you? _____

4. What is your religion?
   (a) Christian
   (b) Muslim
   (c) Hindu
   (d) Other (specify) _____

5. What grade are you in?
   (a) 1 – 3
   (b) 4 – 6
   (c) 7 – 9

SECTION B: KNOWLEDGE

6. What is your understanding of Bilharzia?

   _____

   _____

7. How can one get Bilharzia?
   (a) Witchcraft
   (b) Contact with infected water
   (c) Any other, (specify)_____

8. What is the common sign of Bilharzia?
   (a) Blood in urine
   (b) Pus in urine
   (c) Any other, specify_____

9. How is Bilharzia treated?

(a) Hospital treatment
(b) Traditional Healer
(c) Any other (specify) _____

10. How can one protect himself from getting Bilharzia?

(a) Not getting in contact with infected water
(b) Not shaking hands with people with Bilharzia
(c) Boiling drinking water

11. Is Bilharzia taught in your school?

(a) Yes
(b) No
(c) Don't know

12. Can Bilharzia be treated?

(a) Yes
(b) No

SECTION C: WATER CONTACT

13. Where do you get water from?

(a) Stream/river/lake
(b) Taps
(c) Wells
(d) Any other, specify_____

14. Do you have streams, rivers/lake near to your village/school?

(a) Yes
(b) No

15. If yes to question 14, do you go fishing in the same river/lake or stream?

(a) Yes

(b) No

16. If yes to question 14, do you swim in the same river?

(a) Yes

(b) No

17. If yes to question 14, do you draw water from the same river, Lake/stream?

(a) Yes

(b) No

SECTION D: TREATMENT

18. Have you ever passed blood in urine before?

(a) Yes

(b) No

19. If Yes, to question 18, did you seek medical advice?

(a) Yes

(b) No

20. Have you at one time given samples of urine for schistosoma examination

(a) Yes

(b) No

21. If positive to schistosomiasis, were you given treatment?

(a) Yes

(b) No

-4-

22. If Yes to question 20, what treatment were you given?

(a) Hospital treatment

(b) Traditional home treatment

(c) Not treated

23. If No to question 17, please explain_____

24. If Yes, to question 20, what were you told about your laboratory test results?

(a) positive to schistosoma

(b) Negative to schistosoma

(c) Any other, specify_____

SECTION E: PRACTICE

25. Do you cross the river by wadding in the water?

(d) Yes

(e) No

26. Do people commonly urinate or defecate near or in the river?

(f) Yes

(g) No

27. What activities are you involved in after you come from school?

(h) Farming

(i) Fishing

(j) Looking after cattle

28. What type of occupational activities is your parent/ guardian involved in?

(k) Farming

(l) Fishing

(m) Any other (specify) _____

THANK YOU FOR PARTICIPATING IN THE STUDY

APPENDIX II: WORK PLAN

TASK TO BE PERFORMED	DATES	RESPONSIBLE PERSONNEL	DAYS REQUIRED
Literature Review	Continuous	Principle Investigator	Continuous
Formulation of research proposal and data collection tool	April 11 to 27th July, 2005	Principal Investigator	70 days
Clearing from ethical, funding authority	27th July to 12th August	PBN-UNZA course leader, study setting	10 days
Conducting pilot study	13th August to 25th August	Principal Investigator	9 days
Debriefing and asking for permission – DHMT, DC, DEO, ED	25th August to 29th August	Principal Investigator	2 days
Selection of research assistants	31st August to 30th August	Principal Investigator	1 day
Training of research assistants	31st August to 16th September	Principal Investigator	1 day
Data collection	1st September to 30th September	Research Team	30 days
Data Analysis	3rd October to 16th December	Principal Investigator	55 days
Report writing	17th December to 30th December, 2005	Principal Investigator	10 days

Draft report to PBN	6th January, 2006	Supervisor, Investigator	5 days
Finalization of report and dissemination of results	7th January to 27th January, 2006	Principal Investigator	20 days
Monitoring and evaluation	Continuous	Principal Investigator	Continuous

APPENDIX III: GANTT CHART

TASK TO BE PERFORMED	RESPONSIBLE PERSONS	APRIL	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN
Literature Review	Principal Investigator	◄	—	—	—	—	—	—	—	—	►
Research proposal	Principal Investigator		◄	—	—	►					
Clearance	Supervisor				◄	—	►				
Conducting pilot study	Principal Investigator					◄	—	►			
Debriefing local authority	Principal Investigator						◄	►			
Selection and training of research assistants	Principal Investigator						✖				
Data collection	Principal Investigator						◄	—	►		
Data Analysis	Principal							◄	—	—	►

	Investigator										
Report writing	Principal Investigator									◄►	
Draft report to PBN	Supervisor										◄►
Finalization and feedback	Principal Investigator										◄►
Monitoring and evaluation	Principal Investigator	◄									►

APPENDIX IV: PROPOSED RESEARCH BUDGET

ITEM	MEASURED	REQUIRED	COST	TOTAL (ZMK)
Personnel allowance	Principal Investigator	20 days	20 x 35,000 x 1	700,000
	Research Assistant	5 days	5x35,000 x 2	350,000
	Driver	5 days	5x35,000 x1	175,000
	Typist	5 days	5x35,000x1	175,000
Total				**1,400,000**
Transport	Fuel (diesel)	80 litres	80 x 5,000	400,000
		5 litres oil	5 x 4,000	20,000
Total				**420,000**
Stationery	Bond paper A 4 paper	2 reams	2 x K25,000	50,000
	Spirals	2	2 x K2,000	4,000
	Pens	10	10 x K1,000	10,000
	Pencils	10	10 x K500	5,000
	Stapler	2	2 x K5,000	10,000
	Staples	1 box	1 x K10,000	10,000
	Research bags	3	3 x 25,000	25,000
	Tippex	5	5 x K5,000	25,000
	Rubber	5	5 x K5,000	25,000
	Photocopy	-	-	300,00
	Binding	-	-	300,000
Total				**814,000**
Refreshments	Cocacola	4 crates	4 x 3,600	144,000
	Biscuits	10 boxes	10x4,500	45,000
Total				**189,000**
Subtotal				**K2,823,000**
Contingency 10%				K282,300
Grand Total				**K3,105,300**

JUSTIFICATION OF THE BUDGET

The above budget was proposed to cater for the total research project costs.

CONTINGENCY

These funds were required because of inflation rate and unforeseen costs.

PERSONNEL ALLOWANCES

The study needed the help of research assistants and other human resource such as driver, typist and laboratory technician. The above required payment of lunch allowances.

TRANSPORT

There was need for fuel, and oil to put in the institution vehicle for transportation purposes.

REFRESHMENTS

The research team members required refreshments during their orientation to the questionnaire.

STATIONERY

The reams of paper were required for writing and printing the proposal, questionnaires and reports. Pens and pencils were used for writing the proposal and in data collection. Tippex was used for correcting mistakes on the proposal and report; stapler and staples were used to staple papers together while research bags were used for carrying questionnaires so as to ensure safety and confidentiality.

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
DEPARTMENT OF POST BASIC NURSING

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P.O. Box 50110
Lusaka

29TH July 2005

REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH
MBALA HOSPITAL
21 AUG 2005
MANAGER ADMINISTRATION
P.O BOX 420059 MBALA

22.08.05
To: E.D.
Recommended
Mwgoma
MA
Approved
2005

District Director of Health
Mbala DHMT
Box 420059
MBALA

UFS: The Head of Department
Post Basic Nursing
Box 50110
Lusaka.

Dear Madam,

RE: RESEARCH STUDY REQUEST TO COLLECT DATA

I am a 4th year student pursuing a BSc degree in Nursing at the University of Zambia, School of Medicine. As part of the fulfillment of a Degree Programme.

I am required to carry out a research Study as partial fulfillment for the award of Bachelor of Science in Nursing. My Topic of study is '***To determine factors contributing to high prevalence of schistosomiasis among school going children aged 7-17 years in Mbala.***

I am hereby requesting for permission to collect data from community members under Mbala Health Centres from 29th August to 9th October, 2005.

Thanking your in advance.

Yours faithfully,

Banda Aaron

All correspondences to be addressed to the Director

In reply please quote
*Ref. No.*MDHB /

CENTRAL BOARD OF HEALTH
MBALA DISTRICT HEALTH BOARD
OFFICE OF THE DISTRICT DIRECTOR OF HEALTH
P. O. BOX 420075
MBALA
TEL: 450468 FAX: 450058
E-mail – mbaladhmt@zamtel.zm

August 22nd 2005

The District Board Secretary
Mbala District
Mbala

Dear Sir,

REF: INTRODUCTION OF MR. BANDA AARON

I wish to introduce Mr. Banda Aaron who is our member of Staff but currently pursuing studies at the University of Zambia.

He is currently here for a study; please make reference to the letter attached hereto.

Iam therefore, making a request to your office to grant him permission to visit your schools in order to conduct this study.

Yours faithfully,

P. M. Chileshe
District Director of Health
Mbala District Health Board

ALL CORRESPONDENCE MUST
BE ADDRESSED TO THE DEBS

TELEPHONE: 04 450091
TELEFAX: 04 450091

In reply, please quote
No.....

REPUBLIC OF ZAMBIA

MINISTRY OF EDUCATION

District Education Board,
P.O Box 420240
Mbala

5th September, 2005.

The Head teacher
Mbala District

Dear Sir/Madam,

RE: MR. AARON BANDA

Mr. Banda is a member of staff at Mbala General Hospital but he is currently studying with the University of Zambia.

Mr. Banda has been given permission to visit your school/s in order to conduct his study.

Please welcome and assist him.

Yours faithfully,

S. Mwambazi
Ag/DESO
For/DISTRICT EDUCATION BOARD SECRETARY
MBALA